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Diversity of Private Schools

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U.S. Department of Education
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"The purpose of the Center shall be to collect, and analyze, and disseminate statistics and other data related to education in the United States and in other nations."—Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 1221e–1).

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Introduction

As part of the mandate to collect data about schools in the United States, the National Center for Education Statistics (NCES) faces a particular challenge in describing the universe of private schools. This school sector, which now enrolls about 12 percent of all kindergarten through grade 12 students, is marked by considerable diversity (Benson and McMillen, 1991). Private schools vary in sponsorship, purpose, and program, ranging from conservative, religiously sponsored schools to nonsectarian academic academies. Heretofore, however, this diversity has not been fully captured in national analyses of public education. Classification schemas used to analyze and report private school data include two (Church Related, Non-church Related) or three (Catholic, Other Religious, Nonsectarian) private school categories. As a "first cut" in classifying schools, these two classifications have some utility, but they may well mask the full range of diversity within the population of private schools.

With private schools increasingly drawn into educational policy debates (see for example, Chubb and Moe, 1990) and into school effectiveness comparisons with the public sphere (Coleman and Hoffer, 1987), it is increasingly apparent that the current private school typologies are incomplete. To more fully capture the diversity of private schools requires an expanded typology.

In 1987, NCES commissioned a report to recommend an expanded set of categories to guide analysis and reporting, as well as additional survey items to facilitate the assignment of schools to categories within the typology (Benson, 1987). The selection of the typology was driven by four primary criteria: (1) subcategories should be based on objective, unambiguous indicators so that placement in subcategories is done with high precision; (2) subcategories should not overlap; (3) subcategories should have considerable utility in predicting or explaining private school characteristics; and (4) subcategories should have administrative utility, providing information that private school associations and networks find useful for diagnosis and planning.

After consideration of several systems of classification and their relative merits in meeting the specified criteria, it was proposed that federally supported research on private schools expand to a nine-category typology based on governance and program type. This typology starts with the three-group categorization

(Catholic, Other Religious, and Nonsectarian), and further subdivides each group into three additional groups:

Catholic
- Parochial
- Diocesan
- Private

Other Religious
- Affiliated with a Conservative Christian school association
- Affiliated with national denomination or other religious school association
- Unaffiliated

Nonsectarian
- Regular programs
- Special emphasis
- Special education

Among Catholic schools, the governance categories (Parochial, Diocesan, Private) are strongly tied to differences in curriculum, student population characteristics, program emphasis, and sources of revenue (Yeager, Benson, Guerra, and Manno, 1985).

In the case of Other Religious schools, recent work (Carper and Hunt, 1984) documents major differences in decisionmaking, educational goals, revenue, and enrollment trends between denomination schools (i.e., Lutheran, Jewish, Seventh-day Adventist) and those non-denominational schools affiliated with a Conservative Christian school association (e.g., Accelerated Christian Education, American Association of Christian Schools, Association of Christian Schools International, Oral Roberts Educational Fellowship). This category is reportedly the fastest growing private school sector. Schools in this type are commonly known as evangelical or fundamental, and are not tied to a denomination per se, but rather are governed by a single church, a foundation, or a local society. A third Other Religious category, Unaffiliated, is suggested to capture those religious schools which affiliate with neither a national denomination nor with a conservative Christian school association.

The three nonsectarian school categories are determined not by governance but by program emphasis. This classification disentangles private schools offering a conventional academic program (Regular) from those which either serve special needs children (Special Education) or provide a program with a Special Emphasis (e.g., arts, vocational, alternative).

Development of Typology

The 1987-88 Schools and Staffing Survey (SASS) was designed to include the data needed to incorporate this private school typology

into analyses of private school education. (A description of SASS is included in the Technical Notes.) The categorization of Catholic schools is relatively straightforward. All private schools indicating a Roman Catholic affiliation along with the response, "Yes--this school is affiliated with a national religious denomination," were asked "If Roman Catholic, what type of school is it?" Parochial (or inter-parochial), Diocesan, or Private. Catholic schools are identified in the typology using this set of questions. (The exact questions are included in the Technical Notes.)

All other (i.e. non-Catholic) private schools responding either "Yes--this school is affiliated with a national religious denomination" or "Yes--although this school is not formally affiliated with a national denomination, it has a religious orientation" are identified as Other Religious schools. Schools were also asked to indicate membership in various private school associations (see Technical Notes). Within the group identified as Other Religious, those schools indicating membership in Accelerated Christian Education, American Association of Christian Schools, Association of Christian Schools International, or Oral Roberts Educational Fellowship are classified as Conservative Christian. Other schools in this group belonging to associations with a religious affiliation or orientation included in their name are classified as Affiliated. The rest of the Other Religious schools either belong to associations without a religious orientation or do not report membership in any school associations; these schools are classified as Unaffiliated.

The final group of private schools, the Nonsectarian schools, includes those schools with the response, "No--this school is secular; any religious orientation or influence is tangential or incidental." These schools are categorized based on responses to the question, "Which of the following best describes this school?" Schools responding Regular elementary or secondary are so classified. Similarly, schools classified as Special Education schools responded Special Education (serves primarily handicapped students). The schools classified as Special Emphasis schools indicated that the school is elementary or secondary with a special program emphasis (e.g., science/math school, performing arts high school, German/French school) or vocational/technical (serves primarily students being trained for occupations) or alternative (offers a curriculum designed to provide alternative or nontraditional education; does not specifically fall into regular, special education, or vocational school).

The 1987-88 Schools and Staffing Survey data yield estimates of 9,527 Catholic schools, including 6,479 Parochial schools, 1,945 Diocesan schools and 1,103 Private schools. The Other Religious school group includes 12,133 schools of which 4,165 are Conservative Christian schools, 4,294 are Affiliated Other Religious schools, and 3,674 are Unaffiliated schools. The 5,145

nonsectarian schools include 2,332 schools with Regular programs, 1,954 Special Emphasis schools, and 859 Special Education schools (table 1).

Analysis of Typology

These nine groups are conceptually distinct. However, if they are not statistically different from one another, their use in analyses of the private school data will not further our understanding of private school education. Thus, before the typology is incorporated into analyses of private school data, a statistical analysis is needed to verify the uniqueness of each of the nine groups. The statistical technique known as multivariate analysis of variance (MANOVA) can be used to compare group means on several different variables simultaneously and then to examine differences between the groups with the goal of determining whether or not the group means on each variable are similar.

SASS includes a wide range of both objective and subjective measures of various aspects of private school education. A set of nine objective measures representing data from all participants in SASS were selected to use in this statistical test of the typology. The measures selected represent data from schools, teachers, and administrators. (Definitions of the variables are included in the Technical Notes). School measures include school size (total enrollment), percentage elementary enrollment, percentage minority enrollment, highest full-time tuition, and an indicator variable as to whether each school has any school-lunch eligible students. Teacher measures include average gross yearly teacher salary, an indicator variable as to whether the school pays for its teachers' medical insurance, and a combined teacher-student measure--the pupil-to-teacher ratio. A school administrator indicator variable of the principal's highest degree was also included, defined in terms of a bachelor's degree or less versus more than bachelor's degree.

Table 2 displays the aggregate means and the mean values for each of the nine objective measures disaggregated across the nine typology groups. By way of example, the pupil-to-teacher ratio provides an illustration of the amount of diversity across the nine private school groups. The aggregate mean for the pupil-to-teacher ratio in private schools is 14.04, but the mean pupil-to-teacher ratios across the groups range from 6.47 in the case of special education schools to 21.04 for Catholic parish schools. Furthermore, this pattern of diversity is repeated within each of the three groups (Catholic-Parochial=21.04 and Private=13.76, Other Religious-Conservative Christian=14.42 and Unaffiliated=13.64, Nonsectarian-Regular=11.89 and Special Education=6.47).

A multivariate analysis of variance of these data employs the individual group means and the related variance structures in a

simultaneous analysis of the variation between and within the groups for each measure, and the relationship across the measures. Given the uneven distribution of private schools across the nine typology groups, a general nonorthogonal analysis of variance is used to account for unequal cell sizes. Additionally, three of the nine dependent variables employed in this analysis are dichotomized variables and thus the distributions of the mean values of these variables violate the underlying MANOVA assumption of multivariate normality. However, violating this assumption does not necessarily invalidate the results. Monte Carlo studies conducted to investigate the robustness to violations of multivariate normality show that departures from multivariate normality have only very slight effects on the Type I error rates for the statistical tests used in this analysis (Ito, 1969; Mardia, 1971). Furthermore, the strength of the univariate tests on the six continuous variables suggests that the overall findings would not change with the exclusion of the three dichotomized variables.

In this analysis, the overall multivariate test of significance tests the null hypothesis that for each of the nine measures, all nine typology groups have the same mean value. The alternative hypothesis is that for at least one of the nine measures there is at least one group with a mean value different from the others. This analysis uses Wilks' lambda to test the null hypothesis. $H_0: \mu_{C1} = \mu_{C2} = \mu_{C3} = \mu_{OR1} = \mu_{OR2} = \mu_{OR3} = \mu_{NS1} = \mu_{NS2} = \mu_{NS3}$. The resulting value of 198,304.41 implies a probability of less than 0.0001 in an F distribution with 9 and 1,875 degrees of freedom (table 3). This suggests that for at least one of the nine measures, there is at least one group with a population mean different from the others.

Specific contrasts can be used to determine how one group differs from another group or how one combination of groups differs from another combination. In this case, the nine private school groups are aggregated into the three groups used in earlier analyses--Catholic, Other Religious, and Nonsectarian, and a MANOVA is performed on the three groups (table 3). The multivariate test of significance for the null hypothesis $H_0: \mu_C = \mu_{OR} = \mu_{NS}$, yields a test statistic of 107.39 with a probability less than 0.0001 and an approximate F distribution with 18 and 3,750 degrees of freedom. Thus, at least one of the three groups has a mean value on one or more of the nine objective measures different from the others. Pairwise contrasts between Other Religious and Catholic ($F(9,1875)=72.75$, $p < 0.0001$), Nonsectarian and Catholic ($F(9,1875)=113.70$, $p < 0.0001$), and Other Religious and Nonsectarian ($F(9,1875)=89.09$, $p < 0.0001$) indicate that the three groups are significantly different from each other on one or more of the nine objective measures.

As a next step, pairwise contrasts are drawn between the three newly defined groups within each of the three earlier groups (e.g. Catholic--Parochial, Diocesan, and Private, table 3). The

multivariate test of a nested design with three embedded null hypotheses, H_0: $\mu_{C1} = \mu_{C2} = \mu_{C3}$, H_0: $\mu_{OR1} = \mu_{OR2} = \mu_{OR3}$, H_0: $\mu_{NS1} = \mu_{NS2} = \mu_{NS3}$, yields the overall test statistic of 25.47 with a probability less than 0.0001 and an approximate F distribution with 54 and 9,565 degrees of freedom. This suggests that within the three original groups, at least one of the new groups has different group means on at least one of the nine objective measures. When the nested results are considered, the fact that each of the nine contrasts has an F statistic with a probability less than 0.01, indicates that the three subgroups within each of the initial groups are significantly different from each other. (In fact, five of the six contrasts have p values less than 0.0001, the nonsectarian regular versus the Nonsectarian Special Emphasis contrast has a p value of 0.008.)

Having established strong group differences between the original three groups, as well as among the three new subgroups within each of the original groups, the next issue is to determine the contribution of each of the nine variables. To do this, the univariate contribution of each of the nine measures is examined in the context of the multivariate test of the model with the full set of between group contrasts (table 4). The univariate F statistics all have a probability less than 0.05, thus they all discriminate significantly between the groups. Within this set of univariate statistics, an F statistic of 3.51 with a probability of 0.0019 for the percentage minority enrollment suggests that this is the least discriminating measure out of the set of nine, and the F-statistic of 71.92 with a probability of less than 0.0001 on highest tuition paid suggests that this is the most discriminating measure of the set.

Finally, a detailed examination of the t-statistics and related p-values for the effect of each of the nine measures taken individually on each contrast provides information on which measures contribute to the differences in group means within each pairwise contrast (tables 5-7).

Comparisons of the means for Parochial and Diocesan schools reveal differences in the two subgroups on school size (enrollment), percentage elementary enrollment, whether or not there are school-lunch eligible students, the pupil teacher ratios, and the principal's highest degree (table 5). Comparisons between Parochial and Private Catholic schools reveal differences on eight of the nine objective measures (i.e., on all but principal's highest degree). Comparisons between Diocesan and Private Catholic schools reveal differences on seven of the nine measures (i.e., on all but enrollment and percentage minority enrollment).

In the Other Religious school category, differences are evident on all measures except school size and the percentage minority enrollment when Conservative Christian and Affiliated Other Religious schools are compared (table 6). In the comparison

of Conservative Christian and Unaffiliated schools fewer differences are observed--percentage elementary enrollment, percentage minority enrollment, tuition level, whether the school pays for its teachers' medical insurance, and the principal's highest degree. Affiliated and Unaffiliated schools differ on teacher salary, whether or not the school paid medical insurance, pupil-to-teacher ratio, and the principal's highest degree.

Among Nonsectarian schools, school size is the only measure, within the set of nine used here, that distinguishes Regular from Special Emphasis Nonsectarian private schools (table 7). [This is consistent with the fact that the F statistic for this contrast, while still significant ($p < 0.008$), is smaller than the rest.] In contrast, the comparison of Regular Nonsectarian private schools with Nonsectarian private Special Education schools finds differences on six of the nine objective measures--school size, tuition level, presence of any school lunch eligible students, teachers' salaries, whether the school pays for its teachers' medical insurance, and the pupil-to-teacher ratio. Special Emphasis Nonsectarian schools also differ from Nonsectarian Special Education schools on six of the nine measures--all but percentage elementary, percentage minority enrollment, and the principal's highest degree.

Conclusion

As noted in the introduction, there is considerable concern within the private school research community that private school diversity is not captured in a three group categorization. Data from the 1987-88 Schools and Staffing Survey were used in this analysis to operationalize a typology that starts with the three-group categorization and further subdivides each group into three additional groups. Data categorized with this new nine-group typology were then analyzed in the context of a set of objective measures in an evaluation of the effectiveness of the new typology in discriminating statistically between school types. The multivariate analysis of variance techniques used confirmed that the original three groups are statistically distinct, and that there are differences among the three new groups within each of the original groups. Finally, a detailed examination of the nine objective measures used in the analysis found that each measure contributed to one or more of the differences observed between the groups.

This analysis leads to the conclusion that the nine groups in the private school typology are both conceptually and statistically distinct. It is anticipated that the use of this typology in future analyses of private school data will better capture the diversity within the private school population and thus may further our understanding of private school education.

Table 1.--Number of private schools, by type of school: United States, 1987-88

School type	Number
Total	26,805
Catholic	9,527
Parochial	6,479
Diocesan	1,945
Private	1,103
Other religious	12,133
Conservative Christian	4,165
Affiliated	4,294
Unaffiliated	3,674
Nonsectarian	5,145
Regular	2,332
Special emphasis	1,954
Special education	859

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1987-88.

Table 2.--Group means on selected measures for all private schools and for private school types: United States, 1987-88

Measure	Total	School type								
		Catholic			Other Religious			Nonsectarian		
		Paro-chial	Dioc-esan	Pri-vate	Con-serv-ative	Affil-iated	Un-affil-iated	Reg-ular	Special Emphasis	Special Educa-tion
Mean enrollment	205	273	348	393	148	158	150	199	130	44
Percent elementary enrollment	67	80	59	25	71	76	76	69	73	74
Percent minority enrollment	19	23	19	32	11	15	16	23	19	15
Mean of highest full-time tuition	2866	962	1174	3080	1396	1666	1830	3412	3403	8870
Any School lunch eligible students	1.7	1.5	1.4	1.8	1.9	1.7	1.8	1.9	1.9	1.7
Average gross annual teacher salary	9630	9580	9630	9820	9340	9740	9330	9620	9700	9860
School paid teacher medical insurance	1.3	1.1	1.1	1.2	1.4	1.2	1.6	1.5	1.4	1.1
Pupil to teacher ratio	14.0	21.0	18.7	13.8	14.4	15.5	13.6	11.9	11.0	6.5
Principal's highest degree-above BA	1.7	1.9	1.8	1.8	1.5	1.6	1.4	1.7	1.6	1.8

NOTE: School lunch eligible students and school paid teacher medical insurance 1=yes and 2=no. Principal's highest degree above BA 1=BA or less and 2=above BA.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1987-88.

Table 3.--MANOVA test results for private school typology: United States, 1987-88

Test-Wilk's lambda	Approximate F	Hypothesis df	Error df	p less than
Overall-9 groups	198,304.41	9	1875	0.0001
Overall-within groups	25.47	54	9565	0.0001
Catholic				
Parochial/Diocesan	16.62	9	1875	0.0001
Parochial/Private	64.15	9	1875	0.0001
Diocesan/Private	29.71	9	1875	0.0001
Other religious				
Conservative/ Affiliated	29.54	9	1875	0.0001
Conservative/ Unaffiliated	4.98	9	1875	0.0001
Affiliated/ Unaffiliated	28.92	9	1875	0.0001
Nonsectarian				
Regular/Special program emphasis	2.49	9	1875	0.0080
Regular/Special education	36.28	9	1875	0.0001
Special program emphasis/ Special education	31.32	9	1875	0.0001
Overall-3 groups	107.39	18	3750	0.0001
Catholic/Other religious	72.75	9	1875	0.0001
Catholic/ Nonsectarian	113.70	9	1875	0.0001
Other religious/ Nonsectarian	89.09	9	1875	0.0001

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1987-88.

Table 4.--Univariate F-statistics for selected measures in test of private school typology: United States, 1987-88

	Approximate F	Hypothesis df	Error df	p less than
Mean enrollment	9.60	54	9565	0.0001
Percent elementary enrollment	60.74	54	9565	0.0001
Percent minority enrollment	3.51	54	9565	0.0019
Mean of highest full-time tuition	71.92	54	9565	0.0001
Any school lunch eligible students	13.21	54	9565	0.0001
Average gross annual teacher salary	47.92	54	9565	0.0001
School paid teacher medical insurance	29.78	54	9565	0.0001
Pupil to teacher ratio	24.79	54	9565	0.0001
Principal's highest degree-above BA	5.55	54	9565	0.0001

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1987-88.

Table 5.--Estimated effects as t-statistics for the Catholic school between group contrasts in test of private school typology: United States, 1987-88

	Parochial/ Diocesan	Catholic Parochial/ Private	Diocesan/ Private
Mean enrollment	-4.31***	-5.25***	-1.72
Percent elementary enrollment	9.21***	17.77***	9.39***
Percent minority enrollment	1.88	-2.83**	-3.70**
Mean of highest full-time tuition	-1.56	-11.81***	-9.25***
Any school lunch eligible students	4.04***	-5.75***	-7.66***
Average gross annual teacher salary	-1.63	-5.79***	-3.97***
School paid teacher medical insurance	- .48	-3.15**	-2.43*
Pupil to teacher ratio	4.50***	10.58***	6.23***
Principal's highest degree-above BA	2.36*	1.18	- .52

NOTE: *** p less than 0.0001, ** p less than 0.01, *p less than 0.05

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1987-88.

Table 6.--Estimated effects as t-statistics for the other religious school between group contrasts in test of private school typology: United States, 1987-88

	Conservative/ Private	Other religious Conservative/ Affiliated	Affiliated/ Unaffiliated
Mean enrollment	- .57	- .07	.42
Percent elementary enrollment	-2.32*	-2.07*	- .16
Percent minority enrollment	-1.76	-1.99*	- .57
Mean of highest full-time tuition	-2.10*	-2.79*	-1.11
Any school lunch eligible students	3.42**	1.94	- .93
Average gross annual teacher salary	-13.60***	.34	12.12***
School paid teacher medical insurance	8.63***	-3.56**	-11.19***
Pupil to teacher ratio	-2.11*	1.30	3.18**
Principal's highest degree-above BA	-3.09**	2.06*	4.83***

NOTE: *** p less than 0.0001, ** p less than 0.01, *p less than 0.05

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1987-88.

Table 7.--Estimated effects as t-statistics for the nonsectarian school between group contrasts in test of private school typology: United States, 1987-88

	Regular/ Special Emphasis	Nonsectarian Regular/ Special Education	Special Emphasis/ Special Education
Mean enrollment	2.86**	3.64**	1.96*
Percent elementary enrollment	-1.30	- .88	- .15
Percent minority enrollment	1.23	1.26	.55
Mean of highest full-time tuition	.05	-16.39***	-15.91***
Any school lunch eligible students	1.09	2.91**	2.23*
Average gross annual teacher salary	-1.90	-3.14**	-2.00*
School paid teacher medical insurance	.96	4.56***	3.90***
Pupil to teacher ratio	1.28	4.24***	3.41***
Principal's highest degree-above BA	.68	-1.03	-1.37

NOTE: *** p less than 0.0001, ** p less than 0.01, *p less than 0.05

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1987-88.

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Technical Notes

Sample selection

All 11,529 private school teachers in the private school teacher sample and 3,513 administrators in the private school administrator sample were selected from the 3,513 schools in the private school sample.

Selection of schools

The private school sample was selected primarily from the QED file of private schools. To improve coverage, two additional steps were taken. The first step was to update the QED file with current lists of schools from 17 private school associations. All private schools on the QED file and the lists from the private associations were then stratified by State, grade level, and affiliation. Sample schools were then selected by systematic (interval) sampling within each stratum, with probability proportional to the square root of the number of teachers. The second step was to include an area frame of schools, contained in 75 probability selected Primary Sampling Units (PSUs), each PSU consisting of a county or group of counties. The PSUs were stratified by Census geographic region: Northeast, West, South, and Midwest; Metropolitan Statistical Area (MSA) status; and private school enrollment. These PSUs were selected from the universe of 2,497 PSUs with probability proportional to the PSU population within each of the 75 PSUs. A telephone search was made to find all eligible (in-scope) private schools, using such sources as yellow pages, Non-Roman Catholic religious institutions, local education agencies, chambers of commerce, local government offices, commercial milk companies, and commercial real estate offices. Roman Catholic religious institutions were not contacted because QED calls each Catholic diocese during its annual list update. All schools not on the QED file or the lists from the private school associations were eligible to be selected for the area sample. Most of these schools were selected with certainty. However, when sampling was performed, schools in the area frame that could be contacted were sampled with probability proportional to the square root of the number of teachers, and those that could not be contacted were selected using a systematic equal probability sampling procedure.

A private school was declared out-of-scope and excluded from the sample if it did not have any students in any of grades 1-12, if it operated in a private home that was used as a family residence, or if it was undetermined whether it operated in a private home and its enrollment was less than 10 students or it had only one teacher.

Selection of Teachers

A list which included all full-time and part-time teachers, itinerant teachers, and long-term substitutes was obtained from each sample school. Within each school, teachers were stratified by experience; one stratum included new teachers, and a second stratum included all other teachers. New teachers were those who, counting the 1987-88 school year, were in the first, second, or third year of their teaching career in either a public or private school system. Within each teacher stratum, elementary and secondary teachers were sorted by subject. Elementary teachers were sorted by General Elementary Education, Special Education, and Other; Secondary teachers were sorted by Mathematics, Science, English, Social Science, Vocational Education, and Other.

The teacher sample was designed to include a basic sample and a Bilingual/ESL (English as a Second Language) supplement. The Bilingual/ESL supplement treated as one group teachers who use a native language other than English to instruct students having limited English proficiency, and teachers who provide students having limited English proficiency with intensive instruction in English. The supplement was funded by the U.S. Department of Education's office of Bilingual Education and Minority Language Affairs (OBEMLA) in order to obtain more reliable estimates of Bilingual/ESL teachers.

The basic sample of teachers was allocated to the sample schools in each stratum so that the teacher weights were approximately equal. The specified average teacher sample size for each sample school (4, 5, and 3 teachers for each private elementary, secondary, and combined school, respectively) was then allocated to the two teacher strata to obtain a 60 percent oversampling of new private school teachers. Finally, an equal probability systematic sampling scheme was applied to select the basic sample within each school. The Bilingual/ESL supplement was selected independently from the basic sample, and was designed to provide estimates for California, Texas, Florida, Illinois, New York, and all other states. Within a school containing Bilingual/ESL teachers, teachers were selected systematically with equal probability.

The sample sizes were as follows:	
Basic samples	
Private	11,412
Bilingual/ESL supplement samples	
Private	183

Bilingual/ESL teachers selected in both the basic and supplement samples were unduplicated so that each teacher appears only once in the combined sample of Bilingual/ESL and all other teachers.

More detailed information about the sample selection may be obtained from the survey technical report, "SASS 1987-88 Sample Design Methodology."

Data Collection

The School Administrator Questionnaire and Private School Questionnaire were mailed to the administrator of each sampled school in February 1988. A second questionnaire was mailed to all nonrespondents in March, and a telephone followup on nonrespondents was conducted during April, May, and June.

The TDS questionnaires were mailed to the sampled private schools during late January to late February 1988. Approximately 6 weeks after the initial mailout, a second questionnaire was mailed to those sample cases that did not return the first questionnaire. One month after the second mailout of the questionnaires, a telephone followup was begun. Interviewers contacted the sample cases that failed to return a questionnaire and attempted to complete an interview by telephone. Nonresponse cases from the mailout phase were included in the telephone followup.

The Teacher Questionnaires were mailed to the sampled schools in February 1988. Approximately 10 days after this mailout, a letter was sent to the survey coordinator in each school identifying the school's sample teachers and requesting the coordinator to remind the sample teachers to complete and return their questionnaires. Approximately 6 weeks after the mailout, a second set of questionnaires, for sample teachers who had not returned the first questionnaire, was sent in a package to the school coordinators for distribution to nonresponding teachers. During the time of this second mailout, each coordinator was telephoned and asked to remind those teachers who had not returned the first questionnaire to complete the second one and mail it back. A telephone followup was conducted during April, May, and June. Due to the large number of nonrespondents to the mailout and the necessity for completing the followup prior to the closing of schools for the summer, only a subsample of these teachers was included in this effort. This subsample had their weights adjusted to reflect the subsampling.

Questionnaire response rates

The weighted response rates were calculated using the sampling weights. The weighted response rate was 78.6 percent for the Private School Questionnaire. The weighted response rate was 66.0 percent for the Private School TDS Questionnaire. This low response rate may correspondingly affect the reliability of the estimates for private schools. The weighted response rates for the School Administrator Questionnaire was 79.3 percent for private

school administrators. The weighted response rate was 79.1 percent for the Private School Teachers Questionnaire. All weights were adjusted for nonresponse.

Item response rates

Data imputations were performed using hot deck procedures for missing data on both the school and district components, but not for the teacher and administrator components. The unweighted item response rates were 100.0 percent for elementary enrollment, 100.0 percent for minority enrollment, 95.3 percent for highest tuition paid, 80.0 percent for school lunch eligible, 93.2 percent for average gross yearly salary, 86.4 percent for school paid medical insurance, 100.0 percent for pupil to teacher ratio, 100.00 percent for enrollment and 100.00 percent for principal's degree.

Effects of item nonresponse

There was no explicit imputation for item nonresponse for the Teacher and Administrator Questionnaires. Not imputing for item nonresponse leads to a bias in the estimates. In tables which present averages, the nature of this bias is unknown. Analysis in this report was restricted to the subset of cases (1883) with responses on all items included in the analysis. Given that this report is based on an analysis of school means for each variable, this restriction is equivalent to assigning the school mean to each missing case.

Standard errors

SASS has a complex sample design with clustering of teachers within school and schools sampled with stratification. It is customary to employ complex variance estimation procedures in analyses of these data to incorporate the design features of this complex sample design. Those procedures are especially useful in accounting for the clustering that occurs in complex sample designs. However, given that this analysis is based solely on a set of variables defined at the school level, clustering is not an issue in this analysis. As a result, we use variance estimates computed under the assumption of simple random sampling. All null hypotheses were tested at the 0.05 level. Note, the variance estimates do not take into account the effects of biases due to item nonresponse, measurement error, data processing error, or other systematic error.

Multivariate Analysis of Variance (MANOVA)

The multivariate analysis of variance described in this report

was performed using the software package Multivariance, developed by J. Finn, and distributed by Scientific Software, Inc. Mooresville, Indiana. For more information about the statistical theory underlying MANOVA, the interested reader is referred to Bock, R.D.
Multivariate Statistical Methods in Behavioral Research. New York: McGraw-Hill, 1975.

Definitions

School

The QED generally defines a school in terms of "building" as opposed to "administrative unit". For example, in most instances the QED counts an elementary school and a secondary school housed in one building as one school. Additionally, by definition, private schools had to provide instruction to students in at least one of the grades 1 through 12; and a private school could not be in a private home (if this could not be determined, the school had to have at least 10 students or more than one teacher to be included).

Further constraints applied in defining private schools were as follows:

Minimum length of the school day had to be 4 hours.
Minimum length of the school year had to be 160 days.
Instruction had to be provided to students at or above the first grade level.
The school could not offer adult courses only, night courses only, or specialized courses only.
Instruction could not be in a private home.

School level

Elementary – a school that has grade 6 or lower, or a low grade of ungraded, and no grade higher than the 8th.

Secondary – a school that has no grade lower than the 7th, and a high grade of 12 or lower, or ungraded.

Combined – all schools that have grades higher than the 8th, and lower than the 7th.

Teacher

For purposes of this survey, a teacher was any full-time or part-time teacher whose primary assignment was teaching in any of grades K-12. Itinerant teachers were included, as well as longterm substitutes who were filling the role of a regular teacher on an indefinite basis.

Full-time teachers were all teachers reporting themselves as full-time teachers at the sample school. This included regular full-time teachers, itinerant teachers, and long term substitutes who were full-time.

Affiliation Groupings

Below is a list of the 13 affiliation groupings that were used in stratifying the private schools by affiliation.

Catholic
Friends
Episcopal
Jewish
Lutheran
Seventh-Day Adventist
Christian Schools International
American Association of Christian Schools
National Association of Private Schools for Exceptional Children
Association of Military Colleges and Schools of the U.S.
American Montessori Society
National Association of Independent Schools
Other

Pupil-to-teacher ratio

This ratio is computed on the basis of the number of students enrolled on or about October 1 of the current school year to the count of full-time equivalent teachers on or about October 1 of the current school year.

Region

The geographic regions used by the U.S. Bureau of the Census:

West	**Northeast**
Montana	Maine
Idaho	New Hampshire
Wyoming	Vermont
Colorado	Massachusetts
New Mexico	Rhode Island
Arizona	Connecticut
Utah	New York
Nevada	New Jersey
Washington	Pennsylvania
Oregon	
California	
Alaska	
Hawaii	

Midwest	**South**
Ohio	Delaware
Indiana	Maryland
Illinois	District of Columbia
Michigan	Virginia
Wisconsin	West Virginia
Minnesota	North Carolina
Iowa	South Carolina
Missouri	Georgia
North Dakota	Florida
South Dakota	Kentucky
Nebraska	Tennessee
Kansas	Mississippi
	Arkansas
	Louisiana
	Oklahoma
	Texas

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For More Information

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